Appendix A

WAG 10 OU 10-08 DQO Workshop Agenda and Meeting Minutes

WAG 10 OU 10-08 DQO Workshop

Agenda for February Meeting in Boise

Waste Area Group (WAG) 10 Operable Unit (OU) 10-04 initially included scope to address site-wide groundwater assessment of the Snake River Plain Aquifer (SRPA) and new sites that would not be considered part of the other waste area groups. The WAG 10 OU 10-04 Work Plan, drafted and submitted to the Agencies in April 1999 to comply with requirements of the *Federal Facility Agreement and Consent Order*, included some description of groundwater-related activities. Subsequent to submitting the WAG 10 OU 10-04 Work Plan, the decision-makers decided to create a new operable unit, WAG 10 OU 10-08, in June 1999. This new operable unit would require preparation of a Remedial Investigation/ Feasibility Study (RI/FS) Work Plan with an enforceable milestone date for submitting the draft document in April 2002.

The process for developing the WAG 10 OU 10-08 RI/FS Work Plan includes conducting a graded data quality objectives (DQOs) activity based on the January 2000, U. S. Environmental Protection Agency (EPA) guidance. The DQO will be focused toward defining the information necessary to develop the Record of Decision and long-term site-wide groundwater monitoring for assessing the SRPA beneath the Idaho National Engineering and Environmental Laboratory (INEEL). Based on the EPA and Idaho Department of Environmental Quality (IDEQ) response to the questions posed for the DQO workshop, the following items should be considered for the February meeting:

1. Work Plan – The Department of Energy (DOE) needs to submit a RI/FS Work Plan to comply with the April 2002, enforceable milestone date.

    a. What are the Agencies' expectations for the Work Plan?

2. Qualitative Risk for Groundwater – Previous documentation indicates only qualitative risk assessment for groundwater using key contaminants.

    a. Is this approach still valid?

3. Use of maximum contaminant levels (MCLs) for Site-wide Assessment.

    a. Is the use of the MCLs for the site-wide monitoring acceptable by regulatory agencies?

4. Contaminants of Potential Concern (COPCs).

    a. What COPCs should be included in the site-wide monitoring?

    b. What frequency should the monitoring follow for the pre- and post-100 year periods?

    c. What wells should be used for site-wide monitoring?

5. New Sites

    a. Address if not discussed in Work Plan discussion in Item 1.

WAG10 OU 10-08 Data Quality Objectives Workshop Meeting Minutes February 6 – 7, 2001

Attendee	Organization	Phone Number
Doug Vandel	BBWI	208-526-9382
George Henckel	BBWI	208-526-8446
Ron Arnett	BBWI	208-526-9005
Paul Hehn	BBWI	208-526-8886
Roger Ovink	CH2MHILL/Hanford	509-375-9426
Tim Mosko	CH2MHILL/Boise	208-345-5310
Kathy M. Dickey	CH2MHILL/Salt Lake City	801-281-2426
Mark Shaw	DOE-ID	208-526-6442
Jeff Snook	DOE-ID	208-526-5720
Richard Poeton	EPA	206-553-863
John Roland	EPA (Gannett Fleming)	206-467-6072
Gerry Winter	IDEQ	208-373-0402
Daryl Koch	IDEQ	208-373-0492

A brief description of the Graded Approach Process for DQOs was given. This graded approach focuses on applying the appropriate level of effort to the particular project. For WAG 10 OU 10-08, it is recognized that a Grade 4 or full DQO process is not required. This DQO is defined as a Grade 2 or condensed DQO.

The approved WAG 10 OU 10-04 Work Plan is the recognized basis for preparing the WAG 10 OU 10-08 Work Plan. The WAG 10 OU 10-04 Work Plan identifies long-term monitoring as the primary activity anticipated for site-wide groundwater in WAG 10 OU 10-08. The primary topics for discussion were as follows:

- Work Plan – Expectations for content
- Vertical profiling of the groundwater impacts
- Qualitative risk assessment
- What, where, and when to look for contamination in the groundwater
- New waste sites.

Topics of Discussion

Work Plan

The following Work Plan issues were discussed:

- The WAG 10 OU 10-08 Work Plan will be an abbreviated format using summaries and references. Existing published information will be updated as necessary. There will be limited field documentation. The basis for the WAG 10 OU 10-08 Work Plan will be the WAG 10 OU 10-04 Work Plan, which will be updated. Both the IDEQ and EPA regulators agree that a condensed Work Plan with references to other materials will be adequate.

- The specific focus of the Work Plan will include the following:

  - A summary of the site history
  - Existing groundwater monitoring
  - Record of Decision (RODs) from other WAGs
  - How new sites will be handled in relation to previous RODs and the WAG 10 OU 10-08 ROD
  - Development of new site categories.

- The use of aerial survey(s) to identify new sites may be necessary. This task should include a review of historical aerial photos. There is a new project to do a vegetation survey. Also, fly-overs at 100 feet above the ground are planned for the ordnance survey. Radiation surveys are being done; one group is taking data from a 1990 flyover, reanalyzing the data and linking to new satellites. This application would not identify small waste areas unless aerial magnetics could detect them. This approach is valid primarily for larger sites.

  - Current survey efforts are focusing on ecological, ordnance, and fire burn areas – this would be a start, as a surface survey could be conducted with further investigation if that survey finds anything.
  - The availability of historical photos should be investigated. This activity should be tied to the ordnance project as much as possible.

- The Table of Contents for the WAG 10 OU 10-08 Work Plan should have a format similar to the WAG 10 OU 10-04 Work Plan.

- A summary discussion of all the WAGs should be included in the WAG 10 OU 10-08 Work Plan, but other documents should be referenced whenever possible to reduce the volume. The WAG 10 OU 10-08 Work Plan rationale should be data quality and should include the WAG 10 OU 10-08 DQO Workbook as an appendix.

- A field sampling plan is not anticipated for WAG 10 OU 10-08. Data mining is the primary activity, on the premise that the trending of data will provide more useful and defendable

information for long-term monitoring at WAG 10 OU 10-08. The issue of validation was discussed, and it was agreed that 10 to 20% of field sampling data should be validated. Another issue is the uncertainty of data created by reporting the 2 sigma versus 3 sigma. (DOE uses 2 sigma; United States Geological Survey [USGS] uses 3 sigma.) An agreement on which uncertainty to report should be reached.

- The question was raised as to where Clay Nichols is on Vadose Zone Mapping and how this effort will fit in with WAG 10 OU 10-08. Jeff Snook will have Clay update Gerry Winters on the next site visit.

- The data mining effort should include specific wells with their constituents, but not common ions (statistical manipulation not included); where data are sparse, it will be necessary to identify the deficiencies. Existing RODs will be used to provide data for individual WAGs.

- Sampling protocol may have to increase or change to achieve consistency (USGS analyzes for different constituents).

- For integration of modeling:

  - WAG 10 OU 10-08 requires all available data to provide the site overview.

  - Super-INEEL scale modeling is needed.

  - The model should be included in the WAG 10 OU 10-08 Work Plan.

  - The WAG 10 OU 10-08 model should be the big picture model; consistency is needed between the WAGs.

  - Less than 3% porosity should be used in several models.

  - Alternative modeling components affect porosity and number of layers.

  - There are uncertainties in assumptions for the different WAGs, parameters, and features.

  - Three-dimensional modeling is needed at Test Area North (TAN) and Idaho Nuclear Technology and Engineering Center (INTEC).

- Consistency in construction of wells has been identified as an issue. Elimination of dissimilar materials in wells and use of standardized well equipment is recommended. Another option is the use of innovative technology for well sampling techniques. A treatability study may be required. By isolating zones, data that are more consistent could be acquired.

- Purge water is an issue. Savannah River uses an in-well holding technology (Purge Water Management System) that has been approved by the State and EPA. This could be a cost saver. IDEQ and EPA will review this technology and give it consideration after reviewing the Savannah River Plant (SRP) presentation. One option is to do a cold test in a "clean" area and treat purge water at the site. The DOE and the Agencies will need to be able to defend these types of purge water management actions if pursued.

Mercury Contamination at TSF-08

The discussion of mercury contamination at Technical Support Facility (TSF-08) included the following topics:

- A literature review has been conducted. The results indicate that there are not sufficient data available to prepare an effective test plan. These data were reviewed, although the plant uptake factor from the data was not what was calculated for risk.

- Test plan phytoremediation.

- Sagebrush may provide increased volatilization of mercury; there is not enough information to proceed. Mercury is not bioavailable right now. A demonstration that the mercury is immobile and the sagebrush has reduced the uptake is required. Terry McGonigle at the Idaho Sate University (ISU) has proposed to immobilize mercury as part of the NABIR Program. A full proposal was requested by the NABIR Program. This could be a way to address the mercury while minimizing the cost to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and providing science the opportunity to assist CERCLA. This might be a better path. If the uptake is low from this proposed method, it could possibly eliminate the home-grown produce exposure scenario. A cold test could be run in the greenhouse with a known concentration of mercury. This means a treatability study would be required.

- The intended land use needs to be determined. The risk calculation may be too conservative. One option is to dig up and dispose of the soil at a landfill. This was done once for TSF-08, but the results were not acceptable. Another option would be to dig and sample the bottom of the hole (rough order of magnitude [ROM] cost; $600K – $1M).

- Alternatives:

  - The No Action alternative can be selected, if it can be proven that there is no uptake/risk.

  - Implementation of institutional controls (until TAN capped) – this was the preferred alternative.

  - TAN building cap covers this site (2020 + 5 years).

- Table this issue – IDEQ needs to discuss internally. EPA thought the uptake factor was too high, but there was supporting data for the factor.

Qualitative Risk

Discussion regarding Qualitative Risk included the following items:

- There is only one statement in the WAG 10 OU 10-04 Work Plan regarding qualitative risk. It is still agreed that there should be no field sampling associated with the WAG 10 OU 10-08. The individual WAGs will deal with groundwater effects for their WAGs; WAG 10 OU 10-08 will monitor overlaps.

- Risk assessments will be done at the individual WAGs.

- WAG 10 OU 10-08 will deal with cumulative effects.

- Numerical risk action level estimates must achieve or meet MCLs to show human health protection.

- There may not be significant overlaps of the plumes. This requires further investigation.

- For the WAG 10 OU 10-08 Work Plan and Remedial Investigation, a simplistic method is needed to address risk. Potential overlaps where plume concentrations may be additive should be evaluated. Vertical groundwater quality profiling is needed. Verification of the COPC concentrations in the aquifer is required as well as documentation that the concentrations decrease at the rate expected (at Test Reactor Area [TRA]) in one to two decades. Key issues include:

  – WAG 3: the Big Lost River (BLR) spreading in spring – Issues include whether the BLR should be channeled and lined and how to monitor the shallow perched zone.

  – WAG 7: the issue is whether spreading water is bringing contamination to the aquifer.

  – WAG 10 OU 10-08: the issue of the interrelationships between the individual WAGs. WAG 10's mission is to coordinate, integrate, and provide support and focus on that approach.

  – Qualitative risk concepts should be incorporated into the monitoring plan. The data needs to be collected and risk should be qualitatively evaluated before a decision can be made.

- Coordination with USGS is improved; there is better communication. It is recommended that unused boreholes be decommissioned. The agencies expressed the comment that it would be valuable if USGS would tag team with Bechtel BWXT Idaho, LLC (BBWI) to learn sampling quality assurance (QA) techniques. If any issues are identified with USGS, DOE must formally resolve the issues between BBWI and USGS. Currently, there has been excellent and improving cooperation with USGS. Coordination with all WAGs must be implemented. The Plan of the Week (POW) meeting is where this will take place. Jeff Snook has weekly POW meetings with all the WAG managers. This has not gone to the groundwater committee yet. The plan is to incorporate this in next years drilling plan.

Use of MCLs for Site-wide Assessment

The discussion included the following items:

- Field sampling will not be required, but the data collected will be used to feed other WAG feasibility studies.

- The COPCs that are less than MCLs will qualify as acceptable risk compliance measurements (4 mrem to an individual organ calculated by 1976 interim drinking water standards) for radioactive contaminants. For nonradioactive COPCs, MCLs or hazard quotients will be used if the COPCs present potential risk (e.g., COPCs are toxic).

- The issue of aquifer concentrations versus floater/sinker contaminants was discussed. The conclusions are as follows:
  - The recommendation is made to acquire vertical distribution data.
  - Average depth of domestic wells is 15 meters into the aquifer.
  - Where was this decided? – Groundwater screening model (surface sources).
  - Injection well sources must meet MCLs.
  - Perched water must meet MCLs if the well is able to produce enough water to meet the criteria for a domestic well. The need for MCL compliance may be avoided if the wells are allowed to dry up (Chem Plant area presents the most concern).
  - The perched water should be monitored as needed, but only if the well can produce ½ gpm for some period of time (possibly 8 hours).
- Groundwater outside the facility boundaries of other WAGs is the responsibility of WAG 10 OU 10-08.
- Plans should be made now for when it will be feasible to look beyond MCLs:
  - Start with MCLs and revisit those limits every 5 years
  - Eventually the methods will get COPC detection below MCL concentrations
  - One exception will be the monitored natural attenuation at TAN
  - Quantitative levels will be below MCLs.

Contaminants of Potential Concern

The following topics were addressed:

- Listed COPCs are from the individual facility RODs and/or monitoring requirements.
- Laboratory analytical method detection limit at five times below MCLs is currently requested by INEEL from labs.
- The DQO COPC list will be used in the site-wide monitoring plan. If necessary, other COPCs can be added to the requirements for individual WAGs. Data will be reviewed for all contaminants not currently on the COPC list to identify potential issues (using methods identified for COPCs).
- WAG 10 OU 10-08 is required to evaluate and develop trends for the data to pull more information from the collected data. The outcome of this evaluation will be reported in the annual groundwater monitoring report.

Sampling

The following sampling issues were discussed:

- Frequency of sampling
  - Sampling will be conducted quarterly for 3 years for all site-wide monitoring network wells to provide a good base. Once the base is established, sampling will occur semi-annually for 5 years. After that point, sampling will be conducted annually unless the results of past analytical work suggest otherwise. Existing data will be used for trend analysis. For micro-purge, no-purge, or in-well holding technology, simultaneous sampling will be conducted for the first 3 to 4 quarters of operation.
    - The only issue here is whether changing purge technology will affect the trends. Paul Hehn/BBWI does not feel that it would, based on his past experience with the technology.
  - The EPA is agreeable to the sampling frequency proposed
- The question was raised as to whether the constituents listed are adequate
  - The recommendation was made that common cations and anions be done every 5 years. This will help with flow-in/flow-out for those that cannot be trended from historical data, as well as provide path and source information. It was also recommended that I-129 sampling frequency be reduced, as it is expensive and this may be an opportunity to reduce the initial frequency to semiannual analysis. Upgradient wells would be of more interest to WAG 10 OU 10-08 (if written in the ROD, it becomes a compliance issue).
  - Overall site-wide plume maps.
  - For the plutonium isotope, the compliance perception is presence/absence, not MCL compliance. The public wants a yes/no answer for plutonium.

Sample Analytical Results

The discussion involved the following key issue:

- The data shows that there is not enough information gathered at the present time. The same labs are not used consistently and this may have an impact on results. One verification or validation method would be to replicate samples for key wells to determine whether this is an issue. All the WAGs should provide WAG 10 OU 10-08 with electronic copies of results for immediate review.

New Sites

The following items were discussed regarding new sites:

- The question was raised as to what it will take for transition to make sure everything is covered.
- The process would entail the following steps: once new site paperwork is signed off, WAG 10 OU 10-08 wants to participate in the process. The assumption is that if a new site is

outside a fence line, it would roll into WAG 10 OU 10-08. If it is inside a WAG fence line, the individual WAG would conduct the Track 1/Track 2 investigation, and then the site would roll into WAG 10 OU 10-08 for remediation, if the remediation is not to be completed by the individual WAG. If the site identified is covered in a current ROD, it would not go to WAG 10 OU 10-08 for remediation. In reality, there should be no big surprises.

- In the WAG 10 OU 10-08 Work Plan, the transition process will be developed with a cut-off date. Hanford has a "remaining sites" ROD. This type of approach may be suitable for use at the INEEL. If new sites are found to be contaminated, they should be returned for remediation to the individual WAG, and a Sampling and Analysis Plan (SAP) developed. The "remaining sites" ROD should include multiple categories of sites and preselected remedies.

    - This could be written into the WAG 10 OU 10-08 Work Plan. There is a concern regarding what should be done if the public requests a public hearing. Doug Vandel/BBWI has the action to speak with Ray Swenson/BBWI Legal regarding the viability of doing this.

Wells and Monitoring Needs

The topics of discussion included:

- Monitoring for influent from offsite with tributary valley underflow and Mud Lake area.
- Whether the point of contact (POC) should be at the INEEL boundary wells.
- The CERCLA POC is the Snake River Plain Aquifer.
- The Site POC is that the boundary concentration is less than the MCL; the Site POC is defined as the INEEL boundary wells.
- The EPA is interested in MCLs at the aquifer, not the INEEL boundary.
    - Compliance is expected anywhere in the SRPA and the EPA does not want the COPCs offsite to exceed the MCLs.
- One key question is whether the plume is moving or growing.
- Another issue is how the local buttes influence groundwater flow paths – should they be considered in well placement (i.e., Big Southern Butte)? These are like "boulders in a stream" in their influence on the groundwater flow direction.
- Simultaneous monitoring at USGS wells.
    - Mostly, USGS wells have been identified to be used for the site-wide groundwater monitoring well network, but they would have to be modified to meet Resource Conservation and Recovery Act (RCRA) requirements – unless the EPA and IDEQ agree that current well construction is acceptable.

- There is a need to select a technical basis for boundary wells. Multi-use completion wells at the southern boundary could be an option; this may provide vertical profiling to ensure that the whole aquifer is covered (multiple fracture zones). The current well construction is suspect also.

- Consideration should be given to vertical profiling at selected deep wells, including USGS wells.

- The COPC list for the boundary wells should be adjusted – USGS does not analyze for the same contaminants that the INEEL does. One solution would be to take all site-wide parameters at boundary wells. All wells will initially screen for all COPCs.

- USGS data will be included in the analysis and footnoted as USGS. This will account for method deviations from standard methods. No privately owned wells will be included, only potential influence wells (DOE and USGS site wells).

- Guard or trigger wells should be set at least one mile inside the southern boundary and upgradient from the boundary wells. These would provide a warning if plumes are moving south. This would allow time to confirm plume information and address the issue. Monitoring of these wells should include site-wide COPCs as well as vertical profiles.

- One old mine shaft (Juniper Mine) is a potential source of nitrate, and Pratt & Whitney wells are mixed metal wells (suspect well construction). It is possible that vertical profiling will be necessary there.

- The WAG 10 OU 10-08 Work Plan will include a detailed analysis of the basis for well selections.

- At INTEC, there should be one upgradient well and a semicircle downgradient to check flow path. There may be a northwest to southeast trend out of the Little Lost River (LLR). New wells may be required (volcanic units; between USGS-116 and -082); there is suspect well construction here. There could be a northwest/southeast trending geological fracture that influences the flow direction.

- At the Radioactive Waste Management Complex (RWMC), there are upgradient wells to the north. Carbon tetrachloride has been detected with northeast flow toward INTEC. There is the possibility for retrofit, and there are also construction issues here. USGS is doing a tracer test this year to see where the carbon tetrachloride is going. There may be a need to have wells that surround RWMC to effectively monitor potential upgradient, downgradient, and cross-gradient flow. Additional wells may be necessary for adequate long-term monitoring.

- There is a water level data evaluation being conducted to configure the water table; North Wind is doing contour maps now for WAG 7.

- At Argonne National Laboratory-West (ANL-W), there are no known COPCs, but it should be monitored just in case with one upgradient well and two downgradient wells.

- At the Power Burst Facility (PBF), there may be a funnel contour effect occurring. The current wells may not be catching this. Review of previous WAG 5 work (~ late 1990s) may provide insight on this issue; Paul Hehn/BBWI will talk to Eric (last name not identified). Additional wells may be needed. Adequate upgradient and downgradient wells in appropriate places are required here.

- At TAN and the Central Facilities Area (CFA), the new wells should be good for monitoring. The nitrate plume is currently moving downgradient and there may be a need for more wells there. CFA may have a uranium plume coming from the north. Water level measurements are suspect here; flow direction could be an issue. IDEQ thinks that more monitoring may be required to the south and southeast (WAG 4 or 5) to refine groundwater flow direction. Upgradient well(s) and downgradient wells are needed for monitoring. Additional wells may be required for adequate monitoring network coverage at CFA.

- At TRA, the fire station well can be used as the upgradient well. Several downgradient wells should be considered for retrofit. There are few wells here, which will leave potential gaps in the data. Monitoring of perched areas (old infiltration ponds) will not be done. There is conflicting data for well depths, etc. Additional wells may be required for adequate long-term groundwater monitoring.

- At Experimental Breeder Reactor (EBR)-I and Boiling Water Reactor Experiment (BORAX), no overall well monitoring is being conducted. Some wells are in place that could work and could be added to the long-term monitoring network.

- At the Naval Reactors Facility (NRF), the wells are RCRA compliant and have good coverage. The recommendation is made to select one upgradient well and two downgradient wells to monitor.

- One issue is whether existing wells should be used as-is or retrofitted. Compliance guidance will be used as a guideline. DOE cannot afford to replace all the wells at once. The recommendation is to look at the historical data, trend it, see how it looks, and then consider the data and quality to determine the need to retrofit. Vertical profiling is needed to help in making an informed decision regarding the usefulness of the existing wells.

- The EPA recommends using the current wells as they are and using improved designs when installing new wells.

- The IDEQ recommends using the wells as they are until the vertical profile is known. Another recommendation is to use a long, open hole well for vertical profiling downgradient.

Modeling

The following issues were addressed:

- Consideration should be given to the uncertainties and probabilistic approaches. In 1995, an Integrated WAG 10 model was developed. The modeling issues include aquifer thickness and model layering. The 1995 WAG 10 model should be updated with consistent vector and velocity flows. Advective velocity field definition modeling is the reason for the need for more modeling. The same computer modeling code (Modflow) that the State uses should be used. This integrated modeling is not duplicating the WAG-specific modeling effort. The current activity is gathering data to go into this model, including boundary conditions, domain, underflow from the tributary valleys and chemistry. It recognizes the need to deal with the Big Southern Butte issues, including low conductivity forces flow around the buttes.

- Both EPA and IDEQ agree to the concepts for groundwater modelling.

Consensus Items

- The Work Plan will say that WAG 10 OU 10-08 will investigate how to incorporate new or remaining sites into the ROD after the ROD is in place.

- The site-wide monitoring plan will emerge from the Work Plan and may even be incorporated into the Work Plan.

- One issue may be the number of iodine samples to be collected and the analytical methods to be used. (This will be a cost-based decision).

- Daryl Koch/IDEQ felt his issues were covered; this was a big improvement over his involvement with WAG 10 OU 10-04. Gerry Winter /IDEQ said the same thing.

    - The Work Plan may be brief, but should include several figures and ample trend data.

- All materials from the workshop will be included in the DQO workbook, including large maps for both Gerry Winter/IDEQ and Rick Poeton/EPA (2 each).

Action Items

- Paul Hehn/BBWI will send the In-Well Holding (Purge Water Management System) SRP presentation to the IDEQ and EPA.

- Daryl Koch/IDEQ and Gerry Winter/IDEQ will talk to Dean (last name not identified) about the Mercury TSF-08 issue.

- Doug Vandel/BBWI will investigate whether INEEL could do a ROD similar to the "remaining sites" ROD at Hanford.

- Paul Hehn/BBWI will talk to Eric (last name not identified) regarding the PBF funnel contour effect issue and whether the wells may not be catching these data.

- Kathy Dickey/CH2MHILL will include all materials from the workshop in the DQO workbook, including large maps for both Gerry Winter/IDEQ and Rick Poeton/EPA (2 each).

Appendix B

List of Selected Site-wide Contaminants of Potential Concern for Site-wide Groundwater Sampling and Analysis

List of Selected Sitewide Contaminants of Potential Concern (COPCs):

For sitewide groundwater sampling and analysis

Contaminant Type:	Contaminant Name:	ROD-Specified COPCs (by Facility)	Action Level (MCLs)	Analytical Method	PQL Required (At least 1/2 MCL)	CAS#	Accuracy (%)	Precision (%)
Organics: (Volatile Organic Compounds)	Carbon Tetrachloride	RWMC	0.005 mg/L	All via USEPA	0.001 mg/L (6)	56-23-5	(11)	(11)
	cis-1,2-Dichloroethene (cis-1,2-DCE)	TAN	0.007 mg/L	Method 8260-B	0.001 mg/L (6)	156-59-2	(11)	(11)
	Methylene Chloride (Dichloromethane)	RWMC	0.005 mg/L	Appendix IX Group	0.001 mg/L (6)	75-09-2	(11)	(11)
	Tetrachloroethylene (PCE)	RWMC	0.005 mg/L	"	0.001 mg/L (6)	127-18-4	(11)	(11)
	trans-1,2-Dichloroethene (trans-1,2-DCE)	TAN	0.1 mg/L	"	0.001 mg/L (6)	156-60-5	(11)	(11)
	Trichloroethene (TCE)	TAN	0.005 mg/L	"	0.001 mg/L (6)	79-01-6	(11)	(11)
Inorganics:								
Metals:	Arsenic (As)	TRA, INTEC	0.05 mg/L	(7)	0.01 mg/L	7440-38-2	+/- 30%	+/- 20%
	Beryllium (Be)	TRA, CFA	0.004 mg/L	(7)	0.0002 mg/L	7440-41-7	+/- 30%	+/- 20%
	Cadmium (Cd)	TRA, CFA	0.005 mg/L	(7)	0.001mg/L	7440-43-9	+/- 30%	+/- 20%
	Chromium (Cr)	TRA, INTEC	0.1 mg/L (total)	(7)	0.01 mg/L	7440-47-3	+/- 30%	+/- 20%
	Lead (Pb)	TRA	Action Level = 0.015 mg/L	(7)	0.003 mg/L	7439-92-1	+/- 30%	+/- 20%
	Manganese (1)	TRA	0.05 mg/L	(7)	0.01 mg/L	7439-96-5	+/- 30%	+/- 20%
	Mercury (Hg)	TRA, INTEC	0.002 mg/L	(7)	0.0002 mg/L	7439-97-6	+/- 30%	+/- 20%
	Zinc	CFA	5 mg/L (SDWS[5])	(7)	0.020 mg/L	7440-66-6	+/- 30%	+/- 20%
Other:	Fluoride (F) (1)	TRA	2.0 mg/L (SDWS[5])	(8)	0.4 mg/L	16984-48-8	+/- 40%	+/- 20%
	Nitrate (as Nitrogen)	CFA(?)	10 mg/L	(9)	2 mg/L	14797-65-0 (2)	+/- 40%	+/- 20%
Radionuclides:	Gross Alpha	Part of TAN, TRA, INTEC,RWMC	15 pCi/L - Total	USEPS Method 900.0 (GFP)	4 pCi/L	12587-46-1	+/- 20% (10)	+/- 25% (10)
	Gross Beta	Part of TAN, TRA, INTEC,RWMC	Not to Exceed 4 mrem/yr Effective Dose Equivalent	USEPS Method 900.0 (GFP)	4 pCi/L	12587-47-2	+/- 20% (10)	+/- 25% (10)
	Gamma emitters	Part of TAN, TRA, INTEC,RWMC	15 pCi/L - Total	Gamma Spec.	3 pCi/L	(3)	+/- 20% (10)	+/- 25% (10)
	Uranium (U) & daughters	TAN, INTEC, RWMC	0.030 mg/L - Total	USEPA Method 908.0, 908.1		7440-61-1 (4)	+/- 20% (10)	+/- 25% (10)
	Iodine-129 (I-129)	INTEC, RWMC	1 pCi/L	USEPS Method 901.1 (TIMS)	0.1 pCi/L	15046-84-1	+/- 20% (10)	+/- 25% (10)
	Plutonium (Pu) & daughters	INTEC	15 pCi/L - Total	Alpha Spectrometry	0.2 pCi/L	7440-07-5 (4)	+/- 20% (10)	+/- 25% (10)
	Strontium-90 (Sr-90)	TAN, TRA, INTEC	8 pCi/L	USEPA Method 905.0 (GFP)	1 pCi/L	10098-97-2	+/- 20% (10)	+/- 25% (10)
	Technetium-99 (Tc-99)	INTEC, RWMC	900 pCi/L?	GFP; LSC	10 pCi/L	14133-76-7	+/- 20% (10)	+/- 25% (10)
	Tritium (H-3)	TAN, TRA, INTEC, RWMC	20,000 pCi/L	USEPA Method 906.0 (LSC)	400 pCi/L	10028-17-8	+/- 20% (10)	+/- 25% (10)

Notes:

(1) Sampled every 5 years per the TRA ROD

(2) CAS# represents the Nitrate (NO_3) ion

(3) No specific CAS# available

(4) CAS# represents parent radionuclide

(5) SDWS = Secondary Drinking Water Standard

(6) PQL based on 25 mL sample volume

(7)Via USEPA Document No. EPA-600/4-79-020 and/or EPA-600/R-04/111 Methods in conjunction with INEEL ER-SOW-156 specificiations for SDG Type 1C data.

(8) Via Standard Method Part 4500 F (Method C, D, or E) of USEPA Method 300.0 Revision 2.1), 340.1, 340.2, or 340.3 in conjunction with INEEL ER-SOW-156 specificationsnfor SDG Type-3 data.

(9) Via ASTM Standard Method D 3867-90 (Method A or B), Standard Method Part 4500- NO3 (Method D, E, F), or USEPA Method 300.0 (Revision 2.1) or 353.2 (Revisions 2.0), in conjunction with INEEL ER-SOW-156 specifications for SDG Type-3 data.

(10) The reported total uncertainty for radioanalytical results gives the range where the true value shouls fall. The reported results hinge greatly on the counting statistics achieved for the measurement.

(11) Laboratory Accuracy and Precision to be determined based on laboratory selected for the analysis.

GFP = gas flow proportional counting

TIMS = Thermal ionization mass spectrometry

LSC = Liquid scintillation counting